relative mitral insufficiency, strained ventricle, etc. A clear understanding of the conditions existing in children as to the area of dulness and auscultatory findings of normal hearts would probably avoid many such errors, because the presence of accidental murmurs (cardiopulmonary) in childhood is, I think, devoid of pathological significance.

The frequency of accidental murmurs in the children examined by Hamill and Le Boutillier[1] were practically the same as in those examined by me. The differentiation they draw, however, between late systolic pulmonary murmurs, which they incidentally refer to as an abnormal condition, and cardiopulmonary murmurs, appears to me a distinction without a difference. I consider it quite impractical to describe refined qualitative differences in murmurs, with the expectation that it will appear the same to other than the one who described them, for, after all, differentiation of systolic murmurs on this basis is not tenable. In other words, it is not practical to differentiate by the character of the murmur between accidental murmurs over the heart area, presumably dependent on different causes, nor is it practical always to differentiate between accidental and organic murmurs from the qualities of the murmur. This at once raises the question of the value of the systolic murmur in general as a diagnostic sign, whence an accurate knowledge of the normal heart becomes indispensable to a decision in children. The systolic murmur is only one of the several signs essential in the diagnosis of valvular lesions.

IMPROVED METHODS IN THE SUCCESSFUL OPERATIVE TREATMENT OF CLEFT PALATE.

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The advisability of plastic operations for the repair of congenital clefts of the palate was for a long time debatable—because successful closure of the gap and a fair restoration of normal speech were unusual. The rejection of osteoplastic operations and the adoption of ingeniously constructed obturators with a movable velum were earnestly advocated by some surgeons.

After a thoughtful experience with various forms of operation and with obturators, I have come to certain definite conclusions which may be worthy of consideration. I have been led to the presentation of these views by the recent publication of articles on the

[1] Amer. Jour. Med. Sci., 1906, cxxxiii, 55.

treatment of cleft palate, which show me that my experience and practise differ from those of some other American operators. In some essential points my opinions have been radically changed within the last few years; in others, I have reached conclusive views, where previously my mind was unsettled.

The view that operations on fissures of the palate should be delayed until the child has become two, three, or four years old is erroneous. It is better to operate when the infant is only a few days old, unless there be some very grave physical debility. In that event the operation may be delayed a few weeks, but such a delay is a misfortune. The time thus occupied in building up the infant's health may be profitably employed in digital compression, applied daily to the two halves of the upper jaw. Squeezing the separated segments of the hard palate together a few times every morning and evening will tend to lessen the breadth of the cleft and give the surgeon a better opportunity of obtaining a bony roof to the mouth by operation.

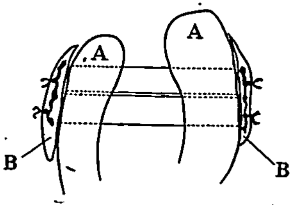

FIG. 1.—Diagram of Brophy's method of forcing and holding the two halves of the infantile cleft palate together by means of silver wires passed through the jaw above the alveolar process. By repeated pressure and gradual tightening of the wires, at the time of operation, the osseocartilaginous roof of the mouth is reconstructed. A, alveolus; B, lead plate. View from the mouth.

Better than this, however, is operation a day or two after birth. My belief is that the proper course, then, will usually be to adopt the method of Brophy, who, by means of long needles, carries strong wires through the two upper maxillary bones above the level of the palate (Fig. 1). The ends of these wires are passed through holes in leaden plates, placed on the external, or buccal, surface of the bones. After the two parts of the hard palate have been forced as near together as possible, by the surgeon's fingers, the adjoining ends of wire are twisted and the bones thus held in the new position.

This procedure causes the loss of but a few drops of blood, gives rise to little or no surgical shock or pain, and has the inestimable advantage of restoring wholly or in part the normal width of the defectively united roof of the mouth. Even if the two upper maxillary bones cannot be brought absolutely together much is gained by diminishing the width of the cleft in the upper jaw. If restoration of the oral roof is not done thus early the sucking and chewing of the babe and future child perhaps tend during the first years of life to increase the width of the palatal fissure. After the use of the wire tie-beams, as they may be called, for about eight weeks, mucoperiosteal flaps from the oral surface of the palate may be used to close any remaining gap in the hard palate, and the soft palate may be closed by freshening and suturing its edges, which now lie comparatively close together, or by using flaps of mucocellular tissue, as in Lane's operation. In narrow clefts the soft palate may be sutured at the time the wires are introduced to bring the two halves of the bony palate together (Fig. 2).

This operation seems to me to be a most valuable addition to our resources. I believe it to be philosophically surgical, since it has for its foundation the idea that the bony elements of the normal partition between nose and mouth should be compelled to aid in the restoration of function to those two cavities.

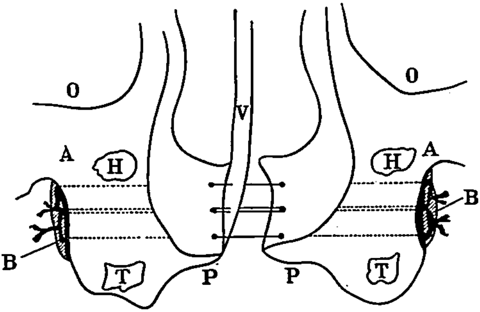

FIG. 2.—Diagram of a vertical view of Brophy's tie-beam method: A, jaw bone; P, palate; T, tooth; H, antrum; B, lead plate and wires; V, vomer; O, orbit.

The closing of any gap left, after all that is possible has been gained by the Brophy operation, I would usually effect by mucoperiosteal and mucocellular flaps made and sutured after the manner of Lane. This method is also to be employed, without a preliminary osteoplastic procedure, in patients in whom the operative treatment has been postponed until the child is over five or six months old, and in cases in which the cleft involves only the soft palate.

One should not be tempted to operate on the harelip, if this coexist, before treating by operation the palatal deficiency. It was formerly a common practise to correct the labial deformity early in infancy, and postpone the operation on the roof of the mouth for several years. This is an error. The great improvement in the physical appearance of the child resulting from the closure of the harelip is admitted. It is much more important, however, to close the roof of the mouth as soon after birth as possible, in order that the nasopharynx and accessory sinuses of the nose may be developed by the pressure of inspired air. The whole facial appearance of a growing child is changed by the direct and indirect influence of this conversion of a mouth breather into a nose breather. An additional result may be expected from closing the opening in the oronasal partition of the baby. It is the avoidance to a great extent at least of the catarrhal rhinitis and pharyngitis so common in cleft palate patients.

Closure of the lip does not effect these desirable improvements in the child's health and facial contour; and, if done before the palate operation, it is in a sense detrimental, because it interferes somewhat with the necessary uranoplastic manipulations by lessening the ease of approach to the operative field. The proper course, therefore, is to close the palate first and to operate upon the lip subsequently. The two operations at times may be done under the same anesthesia, or the labial operation may be delayed a couple of months.

When a cleft palate patient is over six months old it is difficult, if not impossible, to press the two separated upper jaw bones together, so as to close or diminish the intervening cleft. The cartilaginous character of the newborn baby's skeleton is lessened at that age by increasing deposition of inorganic salts. The exact age at which the bones become too rigid for successful displacement varies. In the early weeks of life they may be bent into the desired position without fracture occurring; later they may sustain a greenstick fracture through the body of the jaw above the malleolus. In some cases it is necessary to divide the two upper maxillary bones at this point by a horizontal section with a saw.

This increasing difficulty of forcing the bones toward the median line, so as to hold them together with wire tie-beams, is the chief reason for early operation. Brophy maintains that in most cases of cleft hard palate there is no real deficiency in the amount of osseocartilaginous material to form the roof of the mouth; but that the two halves have simply failed to unite and are spread apart. Hence the value of his method of forcing the palatal processes together and holding them in apposition until union is obtained. The importance of giving the muscles of phonation and the bones of the mouth and nose an early chance to develop and perform their physiological duty will be recognized by all. Delayed operative reconstruction of the palate means progressive atrophy of muscles and other tissues from disuse, and the development of abnormal relations and activities of the parts.

When the palatal segments cannot be brought together even after sawing the bodies of the bones, or when the true physiological time for this operation has passed, the surgeon should close the gap in the bony palate by means of flaps of mucoperiosteum cut and sutured as suggested by Lane (Fig. 3). I have had far better success by this method than by displacing two flaps toward the middle line, as is done in the Langenbeck and Fergusson operations.

Lane raises a large mucoperiosteal flap from the side of the fissure, where there is the larger expanse of palatal tissue. This flap is cut with its free convex border at, or actually upon, the alveolar process, and is left attached at the margin of the congenital cleft. On the opposite side a flap is raised, which is cut loose from the bone at the margin of the cleft and remains attached, for its blood supply, to the bone near the alveolus. The first flap is then turned over, laid across the fissure in the bone, and tucked under the flap raised on the opposite side of the palate. It is sutured in this everted position by two rows of delicate silk sutures inserted with very small curved needles (Fig. 4). The raw surface of the first flap faces the tongue and subsequently becomes cicatrized with a pseudomucous membrane.

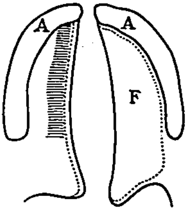

Fig. 3

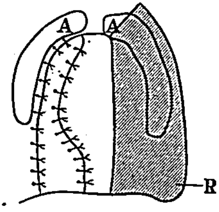

Fig. 4

Fig. 3.—Diagram of the roof of the mouth, showing incisions by Lane's method. A, alveolus; F, flap which is to be everted and tucked under the raised flap on the opposite side. The shaded portion indicates where the raised flap is to be separated from the hard palate.

Fig. 4.—Diagram showing the appearance after the flaps in Fig. 3 have been sutured: A, alveolus; R, raw surface left after the flap has been everted.

This method of utilizing the flaps has the advantage of covering the gap without much tension of the tissues. In addition the secretions from the nose have slight access to the suture lines and therefore the suture punctures are not likely to become infected. The raw surface of the large flap is constantly cleaned by the patient's tongue (Fig. 5).

When the operation is done before the child has developed molar teeth the first flap may be made of extreme width by cutting it from the top and outer side of the alveolar process as well as from the surface of the palate. It may even extend upon the cheek. I know of no other method of uranoplasty which makes available such an extent of well-nourished tissue.

About eight years ago I endeavored to close a palatal cleft by everting a mucoperiosteal flap from each side of the fissure and suturing them in the middle line. I did not know of Lane's method at that time. The cicatricial contraction of the periosteal surfaces made the flaps curl up toward the mouth and caused a failure, after I had thought successful closure of the gap was accomplished. Lane has solved this difficulty and made the plastic operation generally successful by everting only one flap and tucking its free edge under a raised flap on the opposite side of the congenital fissure. When I used the method of Langenbeck and Fergusson, I always entered upon the treatment of cleft palate with misgivings. Now, on the other hand, I am always glad to see such patients, whether they be poor or well-to-do, for I feel so much more sure of obtaining a good result.

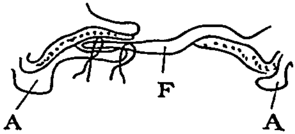

FIG. 5

FIG. 5.—Diagram to show in section the relation of the flaps after suturing in Lane's operation: A, alveolus; F, large flap which has been everted and tucked under small flap.

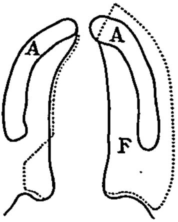

FIG. 6

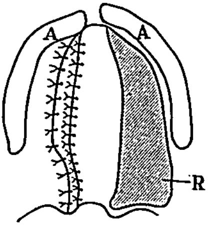

FIG. 7

FIG. 6.—Diagram to show incisions for flaps in Lane's method when the cleft is very wide, and the large flap must include the mucous membrane over the alveolus. The posterior part of the incision on the left side of the diagram is on the nasal surface.

FIG. 7.—Diagram to show appearance when in Fig. 6 the flaps have been sutured

It not infrequently happens that the entire palate cannot be repaired at the first operation; but subsequent minor operations, so common in all plastic work, finally complete the reconstruction (Figs. 6 and 7). With the early closure of a cleft palate made practically always possible and the operative treatment of harelip so satisfactory as it has now become, in skilled hands, surgery holds out to the unhappy parents of the deformed little ones a great deal of comfort.

I formerly used obturators, or artificial palates, occasionally, because of my fear of operative treatment being less satisfactory. These cannot be worn until the child has attained nearly the age of adolescence. Then the secondary atrophy of the nasopharynx and facial skeleton have become established and the speech defects confirmed. Mechanical appliances are, therefore, to be usually rejected in the consideration of the treatment of congenital clefts of the palate. They may at times be employed when the patient has been allowed to grow up without operative treatment in infancy; but they are even then probably a poor makeshift for reconstructive treatment by operation.

In all cases of this congenital anomaly systematic instruction in respiration and speech should be begun immediately after the palate has been repaired by operation. The child must dilate, as it were, the nasopharynx and accessory sinuses of the nose, and train the muscles of phonation, as well as the corresponding brain centres, to do their full physiological duty.

In conclusion, I state my opinions as follows: Cleft palate should be operated upon as soon as possible after birth. Accompanying harelip should not be treated until after the palate operation. When the operation is done during the first six months of life, Brophy's tie-beam method should usually be adopted.

After six months of age, the Lane flap method should generally be employed. At times it may be needed as a supplement to Brophy's method in younger patients. Brophy's method for these cases by means of silver-tension sutures and coaptation sutures with lead splints, or plates, applied to the inferior surface of palate flaps, is also very valuable.

Mechanical appliances to close the fissure are inferior to operative treatment, which has a low necessary mortality.

Instruction in speech is a necessary adjuvant for satisfactory results.

OBSTETRIC PARALYSIS.

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No better illustration of the rapid advance of medical knowledge and treatment within the last quarter of a century can be found than that offered by the history of obstetric paralysis. It was first brought